

State of Oregon
Department of Environmental Quality

Memorandum

Date: March 8, 1996

To: Jim Sheetz, DEQ Northwest Region - Water Quality

From: Bruce Gilles, Project Manager *BAF*

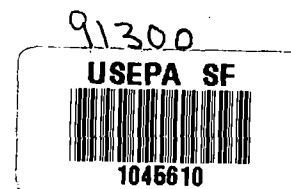
Subject: McCormick & Baxter NPDES Discharge Limits

DEQ and EPA are currently finalizing the cleanup decision (referred to as the "Record of Decision" or "ROD") for the McCormick & Baxter Creosoting site. EPA has indicated they would like final NPDES discharge limits for the groundwater treatment system to be set in the ROD. As we have discussed, I preferred waiting to set the final discharge limits when final discharge rates were determined prior to establishing final discharge limits. I have prepared proposed final discharge limits for the ROD at the request of EPA. The table below includes the proposed limits as well as a discussion of the methods and rationale used to derive the limits.

The February 21, 1995 memorandum from Mike Wiltsey to you summarizes the mixing zone modeling done to estimate the dilution for a 10 foot mixing zone for the NPDES discharge of treated groundwater at the McCormick & Baxter site. Mike's results indicate a 15 fold dilution was achieved at the edge of a 10 foot mixing zone for a daily discharge rate of 4800 gallons/day. To derive final limits, I assumed that the maximum discharge rate will not exceed 30 gallons/minute and that discharge would be continuous (e.g. 24 hours/day) resulting in a daily discharge rate of 43,200 gallons. A mixing zone dilution factor of 1.7 was calculated using the maximum daily discharge rate ($4,800/43,200 * 15 = 1.7$). The monthly average limits were derived using chronic ambient water quality criteria times the dilution factor. The daily maximum was derived using a 1.5 multiplier of the monthly average.

I also computed dioxin/furan (2,3,7,8 TCDD equivalents) loading estimates for the maximum discharge rate of 43,200 gallons/day using the results (0.0000037 ug/L or 3.74 parts per quadrillion) of the dioxin sample collected from the treatment system in September 1995 before carbon polishing. The estimated total maximum daily load for TCDD were 1.6 ug/day using the chronic ambient water quality criteria and 0.6 ug/day using the sample results prior to carbon polishing of the effluent.

The chronic ambient water quality criteria for TCDD is 38 pg/L (Table 20). The TCDD results from the groundwater treatment system prior to carbon polishing was 3.74 pg/L is an order of magnitude less than the chronic ambient water quality criteria. The TCDD waste load allocation which was established for the discharge is 5 ug/day. The estimated loading rate for a 30 gallon/minute/24hour/day discharge is approximately an order of magnitude less than the WLA. The interim discharge limits established by Water Quality did not require



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dioxin monitoring, and based on these analyses, do not appear warranted for final discharge limits.

McCormick & Baxter Creosoting Site NPDES Discharge Limits ¹		
Parameter	Monthly Average	Daily Maximum
Flow		43,200 gallons/day ²
Arsenic (total)	80	120
Chromium (IV) ⁵	19	28
Chromium (III)	350	500
Copper	20	30
Zinc	190	280
Pentachlorophenol ⁴	22	33
Total PAHs ⁵	1700	2500
pH	6.5 - 8.5 SU	6.5 - 8.5 SU

NOTES:

1. All units in micrograms per liter (ug/L) unless otherwise noted.
2. Equivalent to 30 gallons per minute over a continuous 24 hour period.
3. Hexavalent chromium need not be analyzed if chromium III below limits for hexavalent chromium.
4. The Department has established a total maximum daily load (TMDL) and waste load allocation (WLA) for discharges to the Willamette River of 2,3,7,8-tetrachlorodibenzodioxins (TCDD). A 5ug/day WLA has been established for NPDES discharges from the site which will be met through compliance with pentachlorophenol discharge limits.
5. Sum of all detected polycyclic aromatic hydrocarbons.